

What is claimed is:

1. A positive active material for the non-aqueous electrolyte secondary battery, comprising a lithium-nickel composite oxide represented by the compositional formula

5 $\text{Li}_a\text{Ni}_{1-b-c}\text{Co}_b\text{Mn}_c\text{O}_2$ (in which the suffix a is not greater than 1.09, the suffix b is from not smaller than 0.05 to not greater than 0.35, and the suffix c is from not smaller than 0.15 to not greater than 0.35, and the sum of b and c is from not smaller than 0.25 to not greater than 0.55)

10 having a hexagonal structure, wherein

when subjected to the X-ray diffractometry with the $\text{CuK}\alpha$ ray, said lithium-nickel composite oxide exhibits an intensity ratio R $((I_{012} + I_{006})/I_{101})$ of not greater 0.50, R being the ratio of the sum of the diffraction peak
15 intensity I_{012} on the 012 plane and the diffraction peak intensity I_{006} on the 006 plane to the diffraction peak intensity I_{101} on the 101 plane.

2. The positive active material for the non-aqueous electrolyte secondary battery according to Claim 1,
20 wherein said positive active material has a mean particle diameter D_{50} of from 4 μm to 25 μm and a BET specific surface area of from 0.2 to 1.5 m^2/g .

3. The positive active material for the non-aqueous electrolyte secondary battery according to Claim 1,
25 wherein said positive active material has a composition arranged such that b is from not smaller than 0.05 to not

greater than 0.25 and c is from not smaller than 0.2 to not greater than 0.35.

4. The positive active material for the non-aqueous electrolyte secondary battery according to Claim 2,
5 wherein said positive active material has a composition arranged such that b is from not smaller than 0.05 to not greater than 0.25 and c is from not smaller than 0.2 to not greater than 0.35.

5. A positive active material for the non-aqueous
10 electrolyte secondary battery, comprising a lithium-nickel composite oxide represented by the compositional formula $\text{Li}_a\text{Ni}_{1-b-c}\text{Co}_b\text{Mn}_c\text{M}_d\text{O}_2$ (in which M is at least one metal element selected from the group consisting of Al, Ti, W, Nb and Mo, the suffix a is not greater than 1.09, the suffix b is from
15 not smaller than 0.05 to not greater than 0.35, the suffix c is from not smaller than 0.15 to not greater than 0.35, and the suffix d is from greater than 0 to not greater than 0.35, and the sum of b, c and d is from not smaller than 0.25 to not greater than 0.55) having a hexagonal
20 structure, wherein

when subjected to the X-ray diffractometry with the $\text{CuK}\alpha$ ray, said lithium-nickel composite oxide exhibits an intensity ratio R $((I_{012} + I_{006})/I_{101})$ of not greater 0.50, R being the ratio of the sum of the diffraction peak
25 intensity I_{012} on the 012 plane and the diffraction peak

intensity I_{006} on the 006 plane to the diffraction peak
intensity I_{101} on the 101 plane.

6. The positive active material for the non-
aqueous electrolyte secondary battery according to Claim 4,
5 wherein said positive active material has a mean particle
diameter D_{50} of from 4 μm to 25 μm and a BET specific
surface area of from 0.2 to 1.5 m^2/g .

7. A non-aqueous electrolyte secondary battery
comprising a positive electrode comprising said positive
10 active material defined in any one of Claims 1 to 6, a
negative electrode comprising a carbon-based material, and
a non-aqueous electrolyte.